

ART. XIII.—*A Description of Ommatocarcinus corioensis, Cresswell sp., from the Lower Tertiary of Victoria.*

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(With Plate XXIII.).

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During a recent visit to Port Campbell I gathered a number of specimens of a fossil crab which turned out to be the only described species found in our Tertiaries, and, as the original description is not very precise, and is not accompanied by a figure, I thought it as well to supply the deficiencies, as till I saw Mr. Cresswell's specimens I could not be certain of their specific identity.

**Ommatocarcinus corioensis, Cresswell sp.**

Gonoplax corioensis, Cresswell. Victorian Naturalist, vol. 3, 1886, p. 86.

Carapace, nearly twice as broad as long. Front almost straight, being but slightly hollowed on each side of a median convexity. Interocular region three-fourths the width of the front and equal to the length of the antero-lateral spine. The spine when resting on the merus of the chelate limb reaches to its own length from the distal end of the merus. Lateral edges of the carapace converging posteriorly, the postero-lateral angles rounded. Hind-edge as long as the distance of the transverse ridge from it. This strong transverse ridge runs across the whole width of the carapace, and is slightly bent backwards near its ends, where it forms a small rounded projection on the lateral edge at about the length of the antero-lateral spine behind its base. The ridge is about one-third of the length of the carapace from the anterior border, and parallel to it.

The cardiac area is triangular and slightly tumid. It is bounded anteriorly by a well-marked ridge, convex in front, situated about one-third of the length of the carapace from the posterior margin. The sides of the carapace are nearly vertical except in the posterior two-thirds; where viewed from above there is an outward steeply sloping area. This meets an acute ridge, which is parallel to the fore and aft curvature of the dorsal surface.

Anterior edge of the carapace finely and regularly granulate from the distal end of the spine to the orbit. Surface finely granulate in the hepatic region, the granules being coarsest in the antero-lateral angle, and becoming finer as they recede from that point. Outer third of the transverse ridge granulate. The postero-lateral margin with coarse irregular granules along its upper edge. Remainder of the carapace smooth.

Chelipedes nearly twice as long as the length of the transverse ridge of the carapace. Arm trigonal, its lower edge granular on its proximal half, with three small, acute, equi-distant spines on its distal half.

Wrist with a prominent spine on its inner side, a smaller one at the outer distal angle.

Hand flattened, widest at the base of the finger, where its width is about equal to three-quarters of the length of the mobile finger. A broad, shallow groove along its posterior third marks off a flattened ridge along the inner edge, which is finely granular. The upper edge is similarly granular.

Fingers much compressed, with small irregular teeth; a slightly larger one about the middle of the free finger fitting between two similar ones on the immobile finger.

The mera of the ambulatory limbs are expanded, those of the posterior ones specially so, the breadth being more than twice the thickness.

*Eye stalks very long.*

#### MEASUREMENTS.

- Specimen from Curlewis (Rev. A. W. Cresswell)—Fig 1.

|  |   |   |   |   |   |        |
|--|---|---|---|---|---|--------|
| Length, from hind edge of orbit to pos-    | - | - | - | - | - | 26 mm. |
| terior margin -                            | - | - | - | - | - | 45 „   |
| Breadth, just behind antero-lateral spines | - | - | - | - | - | 32 „   |
| Posterior margin -                         | - | - | - | - | - | 2 „    |

## 2. Specimen from Port Campbell—Fig. 2.

|                                |   |   |        |
|--------------------------------|---|---|--------|
| Breadth of Carapace (as above) | - | - | 35 mm. |
| Length of antero-lateral spine | - | - | 5 ,,   |
| Breadth of front               | - | - | 7 ,,   |
| Length of meros of cheliped    | - | - | 20 , ? |
| Length of hand                 | - | - | 30 ,,  |
| Greatest breadth of hand       | - | - | 5 ,,   |
| Length of mobile finger        | - | - | 13 ,,  |

## 3. Specimen from Port Campbell—Fig. 4.

|  |   |   |   |   |       |
|--|---|---|---|---|-------|
| Hand, length                             | - | - | - | - | 45 ,, |
| Length of 3rd ambulatory leg (imperfect) | - | - | - | - | 50 ,, |

Measurements taken from White's original figure of *O. macgillivrayi* in the way described above, for comparison.

|                  |   |   |   |   |   |        |
|------------------|---|---|---|---|---|--------|
| Length           | - | - | - | - | - | 20 mm. |
| Breadth          | - | - | - | - | - | 42 ,,  |
| Posterior margin | - | - | - | - | - | 32 ..  |

Mr. Cresswell's description says that the eye-stalks are short. This would be so much at variance with the other characters of the fossil that attention was naturally directed to it. None of my specimens threw light on the point, and Mr. Cresswell could not find the specimen on which he founded the statement. However, he kindly broke one of the nodules in which his specimens are preserved, and very fortunately the greater part of an eye-stalk was displayed. It is broken off distally, but the part that remains reaches as far as the base of the antero-lateral spine, and I have figured it (Fig. 3). None of my specimens show the length of the ambulatory legs, but Mr. Cresswell says that the second pair is the longest, and that all four pairs end in a pointed toe. I have not been able to check these statements. One of my specimens, however, shows that the legs reach out beyond the end of the merus of the cheliped.

I may say that Mr. Cresswell's description, though not couched in strict scientific language, is quite intelligible, and enabled me to suspect the identity of my specimens before I had the opportunity of comparing them with his. He referred his species to the correct family, but the inaccessibility of the necessary literature prevented his recognition of the real genus.

*Ommatocarcinus corioensis* is very closely related to *O. macgillivrayi*, White,<sup>1</sup> occurring in Queensland and New Zealand. There are, however, differences in the form of the carapace. The antero-lateral spine is directed slightly backwards in the recent species, and runs out straight in the fossil. The carapace again in the fossil species is squarer and less attenuated behind than in *O. macgillivrayi*. The transverse ridge is further back in *O. corioensis*, and cuts the lateral margin at a point distant from the base of the spine by the length of the spine itself, while White's figure shows it running nearly to the base of the spine. The cardiac area in the fossil is much more tumid and strongly marked than is shown in White's figure.

There is again a striking difference in the length of the chelipeds in the fossil and the Queensland forms, but the New Zealand specimens, according to Miers,<sup>2</sup> have theirs much shorter than the Queensland examples, which are still available for comparison in the British Museum. White says that in the latter the chelipeds are two and a half times as long as the carapace, measuring it from spine to spine; these are adult males; while Miers gives the measurements as about equal for the New Zealand ones. In this respect the fossil is intermediate, the measurements being about as 5 is to 4. There is no spinule in the middle of the upper margin of the merus of the cheliped in the fossil, while it is present in the recent species; otherwise the distribution of granulations and small spines seems the same.

The specimens that I gathered were found in the cliff sections, extending for some miles on both sides of Port Campbell, which is about ten miles north-west of the well-known "Gellibrand" section. The beds are nearly horizontal, and can be traced for many miles along the coast, though in many places they are inaccessible owing to the precipitous nature of the cliffs. The sandy clays containing the crabs overlie the blue clays of the "Gellibrand" section which, near the Glenample homestead, plunge rather abruptly beneath them.

<sup>1</sup> White in Macgillivray, "Narrative of the Voyage of the Rattlesnake," 1852 Appendix, p. 393, pl. 5, fig. 1, 1a.

<sup>2</sup> Rep. "Challenger," Zoology, vol. 17, p. 248.

Mr. Cresswell found some of his specimens at Curlewis, about ten miles from Geelong, and also on the Western beach of Corio Bay. The former section was described by Mr. Pritchard and myself some years ago.

The beds are of Barwonian age, and are generally regarded as Eocene.

According to White, *O. macgillivrayi* occurs in shoal water on mud banks, and, judging from the condition of many of the specimens of the fossil I found at Port Campbell, the animals must have been entombed in their burrows. Other fossils are rather rare in the beds containing the crabs, and consist mainly of a few brachiopods and mud haunting spatangoids.

My thanks are due to the Rev. A. W. Cresswell, M.A., for kindly allowing me to examine his specimens and for lending me what I required for comparison and illustration; while Mr. S. H. Fulton has given me the results of his experience on several points.

#### EXPLANATION OF PLATE.

##### *OMMATOCARCINUS CORIOENSIS*, Cresswell sp.

Fig. 1.—Dorsal view of carapace. The antero-lateral spines are broken, and the front is embedded in hard matrix.

From a nodule, Curlewis (Rev. A. W. Cresswell).

Fig. 2.—Dorsal view of another specimen to show the front, anterior margin and spine. The specimen is somewhat crushed, and the posterior third of the carapace is wanting. The carapace is slightly tilted backwards to bring the front into view. From Two-Mile Beach, Port Campbell.

Fig. 3.—Another specimen showing the left eye-stalk which is broken. From a nodule, Curlewis (Rev. A. W. Cresswell).

Fig. 4.—Hand of another specimen. From Two-Mile Beach, Port Campbell. The original shows the ambulatory legs.

Fig. 5.—Wrist of another specimen showing spine. Two-Mile Beach, Port Campbell.

(All outlines drawn under the camera lucida. The figures are about natural size, except Fig. 5, which is enlarged about  $2\frac{1}{2}$  diameter.)